FIG. 1

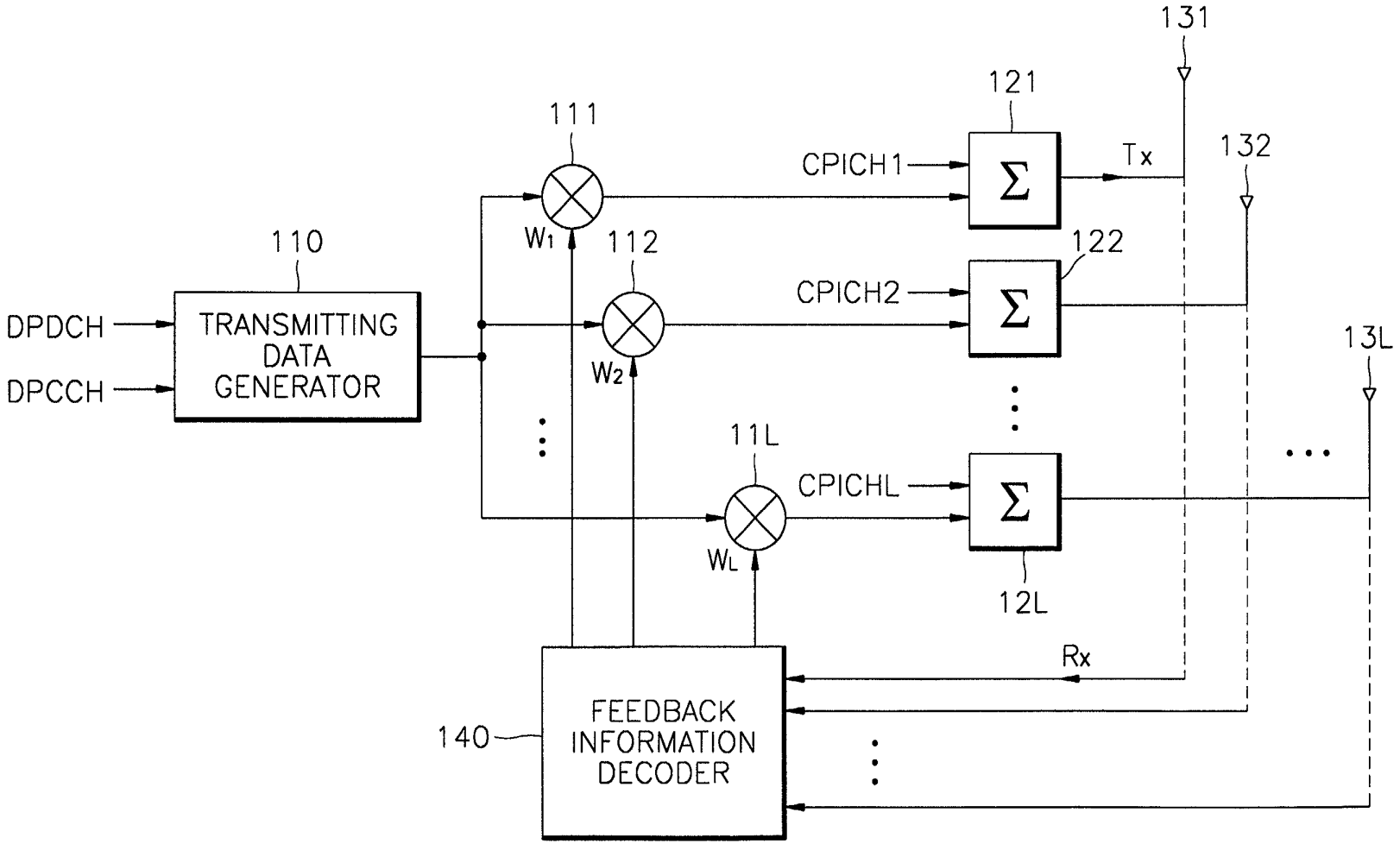
131
121
111
CPICH1
Tx
132
110
W1
112
122
CPICH2
DPDCH
TRANSMITTING DATA GENERATOR
DPCCH
W2
13L
11L
CPICHL
WL
12L
Rx
140
FEEDBACK INFORMATION DECODER

FIG. 2

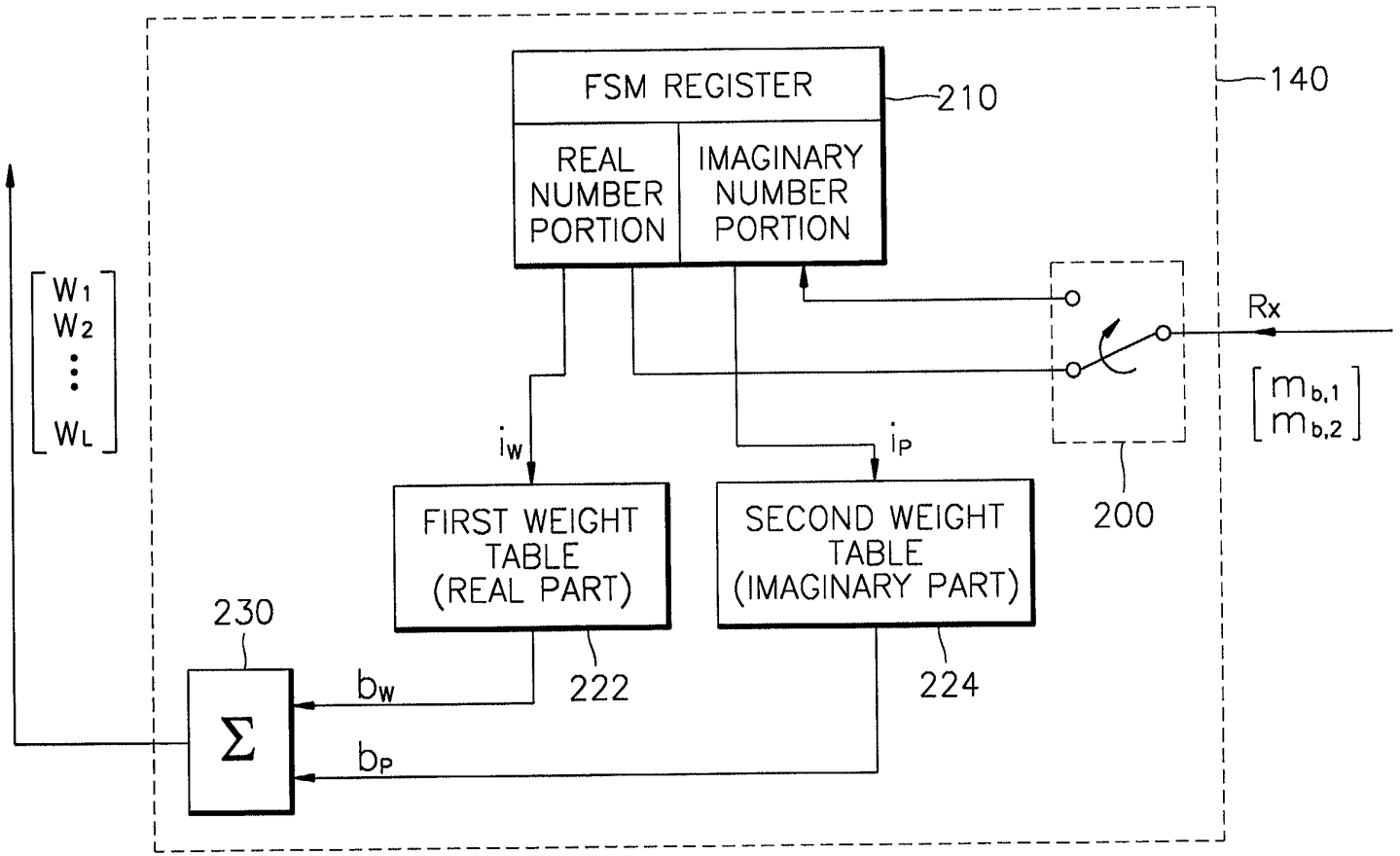
140
FSM REGISTER
210
REAL NUMBER PORTION
IMAGINARY NUMBER PORTION
Rx
$[m_{b,1} \; m_{b,2}]$
200
$[W_1 \; W_2 \; \vdots \; W_L]$
i_W
i_P
FIRST WEIGHT TABLE (REAL PART)
SECOND WEIGHT TABLE (IMAGINARY PART)
222
224
230
Σ
b_W
b_P

FIG. 3

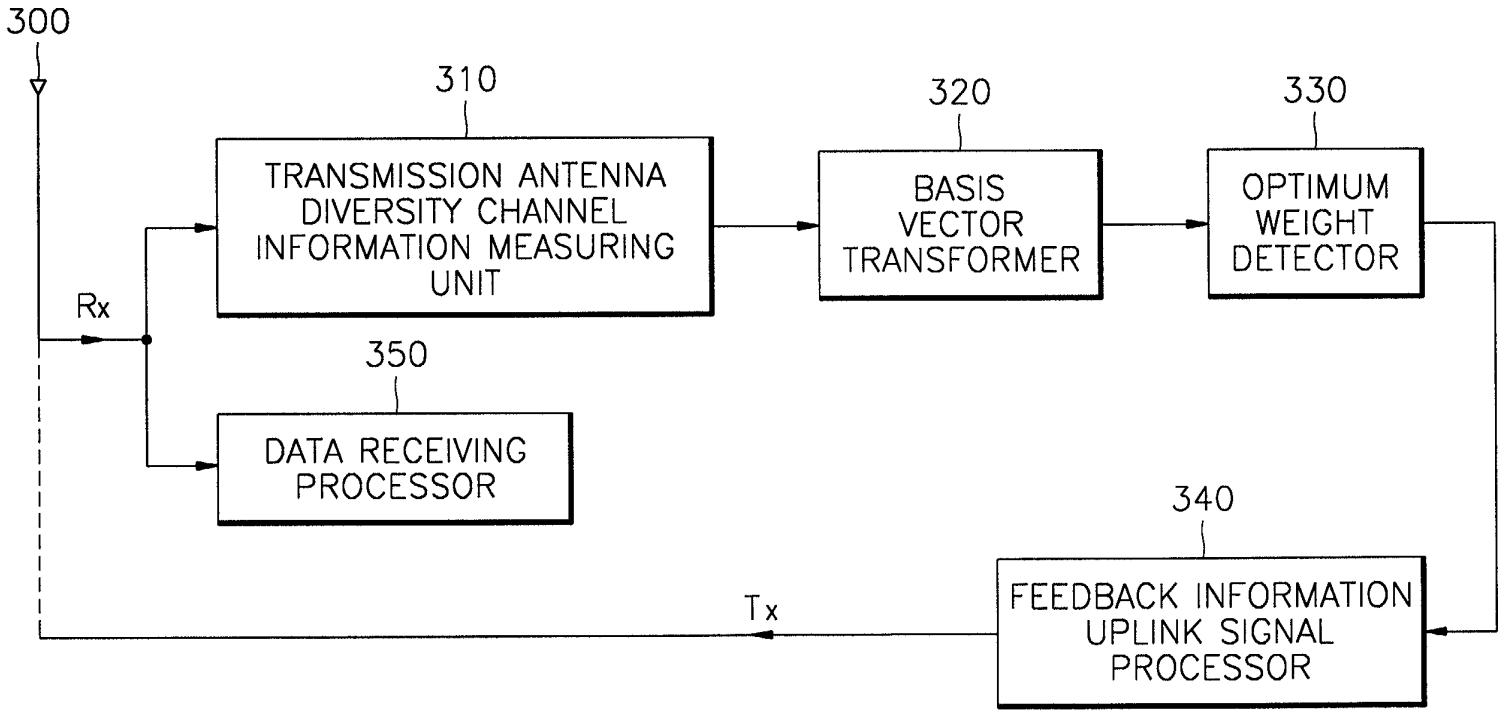
300
310
TRANSMISSION ANTENNA DIVERSITY CHANNEL INFORMATION MEASURING UNIT
320
BASIS VECTOR TRANSFORMER
330
OPTIMUM WEIGHT DETECTOR
Rx
350
DATA RECEIVING PROCESSOR
340
FEEDBACK INFORMATION UPLINK SIGNAL PROCESSOR
Tx

FIG. 4

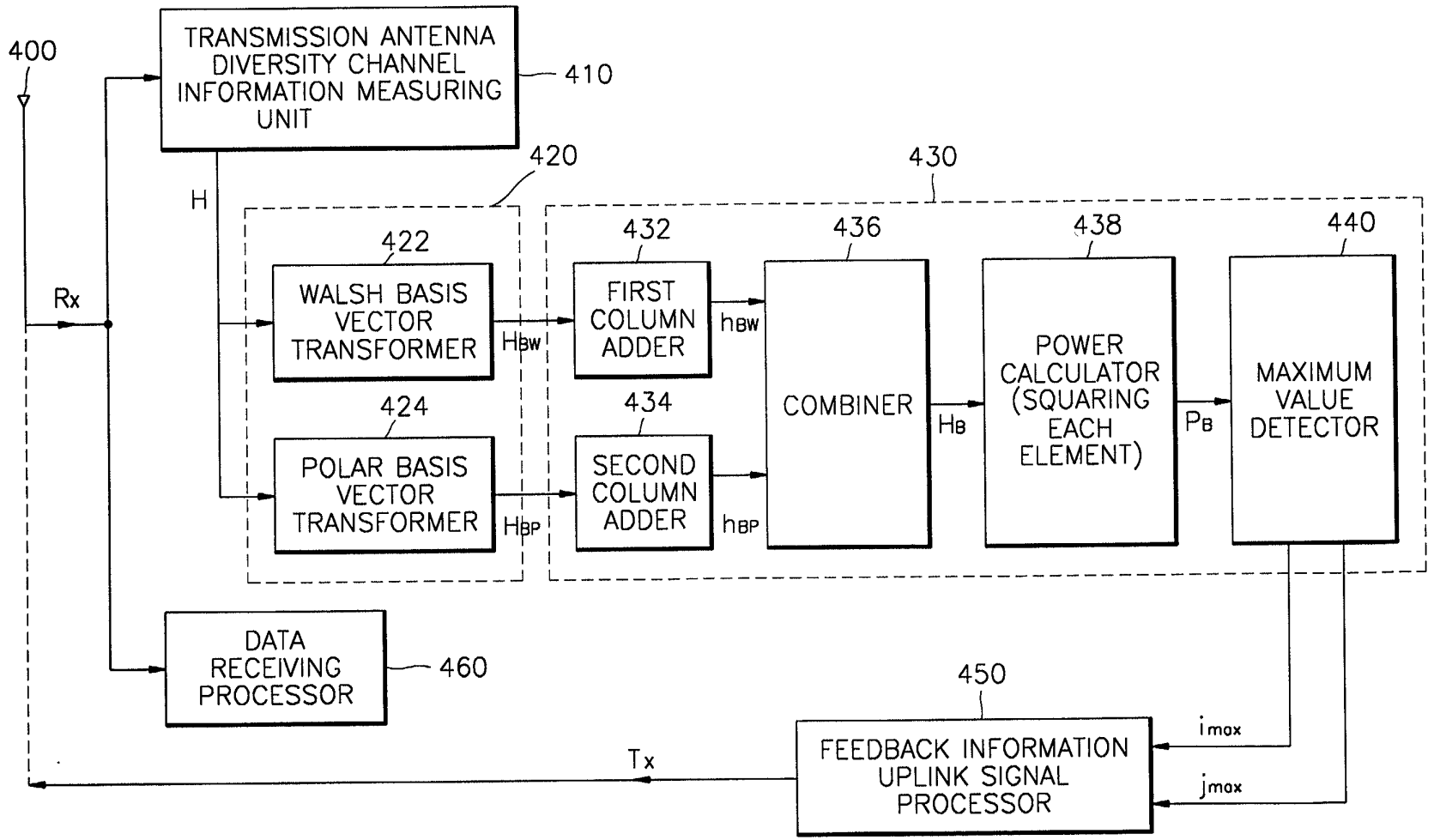
400
TRANSMISSION ANTENNA DIVERSITY CHANNEL INFORMATION MEASURING UNIT
410
H
420
430
422
WALSH BASIS VECTOR TRANSFORMER
Hbw
424
POLAR BASIS VECTOR TRANSFORMER
Hbp
Rx
432
FIRST COLUMN ADDER
hbw
434
SECOND COLUMN ADDER
hbp
436
COMBINER
Hb
438
POWER CALCULATOR (SQUARING EACH ELEMENT)
Pb
440
MAXIMUM VALUE DETECTOR
imax
jmax
DATA RECEIVING PROCESSOR
460
450
FEEDBACK INFORMATION UPLINK SIGNAL PROCESSOR
Tx

FIG. 5A

INDEX	VECTOR
0	[1 1 1 1]
1	[1 −1 1 −1]
2	[1 1 −1 −1]
3	[1 −1 −1 1]

FIG. 5B

INDEX	VECTOR
0	[−1 1 1 1]
1	[1 −1 1 1]
2	[1 1 −1 1]
3	[1 1 1 −1]

FIG. 5C

INDEX	VECTOR	INDEX	VECTOR
0	[1−j 1+j 1+j 1+j]	8	[1+j 1+j 1−j 1+j]
1	[1−j −1+j 1+j −1+j]	9	[1+j −1+j 1−j −1+j]
2	[1−j 1+j −1+j −1+j]	10	[1+j 1+j −1−j −1+j]
3	[1−j −1+j −1+j 1+j]	11	[1+j −1+j −1−j 1+j]
4	[1+j 1−j 1+j 1+j]	12	[1+j 1+j 1+j 1−j]
5	[1+j −1−j 1+j −1+j]	13	[1+j −1+j 1+j −1−j]
6	[1+j 1−j −1+j −1+j]	14	[1+j 1+j −1+j −1−j]
7	[1−j −1−j −1+j 1+j]	15	[1+j −1+j −1+j 1−j]

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FIG. 6

SLOT NUMBER		0	1	2	3	• • •	14	15
FSM	00	$b_W(0)$	$b_P(0)$	$b_W(0)$	$b_P(0)$	• • •	$b_W(0)$	$b_P(0)$
	01	$b_W(1)$	$b_P(1)$	$b_W(1)$	$b_P(1)$	• • •	$b_W(1)$	$b_P(1)$
	10	$b_W(2)$	$b_P(2)$	$b_W(2)$	$b_P(2)$	• • •	$b_W(2)$	$b_P(2)$
	11	$b_W(3)$	$b_P(3)$	$b_W(3)$	$b_P(3)$	• • •	$b_W(3)$	$b_P(3)$

FIG. 7

PARAMETER	VALUE	TYPE
NUMBER OF ANTENNAS	$N_{ant}=4$	CONSTANT
DURATION TIME IN A SLOT	$T_{slot}=1/1500$ sec	
NUMBER OF BASIS SETS FOR BASIS ROTATION	$N_{set}=2$	
FEEDBACK COMMAND LENGTH IN SLOTS	$N_W=2$	
NUMBER OF SELECTION INDEX BITS PER SIGNALING WORD	$N_{set}=\log_2 N_{ant}=2$	VARIABLE
NUMBER OF FEEDBACK INFORMATION BITS PER SLOT	$N_{FBD}=N_{set}/1=2$	
FEEDBACK COMMAND UPDATE RATE	$F_{up}=(N_{FBD}/N_W)T_{slot}=1500Hz$	
FEEDBACK BIT RATE	$N_{FBD}/T_{slot}=3000bps$	